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COLLECTING OF ANNAPHILA SPILA
WITH NOTES ON THE "CRIMSON-WINGED" GROUP
OF THE GENUS

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THE LARGEST SERIES TO DATE of *Annaphila spila* Rindge & Smith was collected in the spring of 1961, at which time a series of over forty specimens was taken in a sheltered draw and along a creek just below Monticello Dam in Solano County, California. In this area, erogeny is magnificently pronounced, with some of the strata almost perpendicular, and as a result, the hillside habitat of *spila* proved very difficult collecting. The area is predominantly chaparral with a scattering of *Pinus sabiniana* and various species of *Quercus* dotting the hillsides.

The flight time is relative to the morning temperature and seemed to begin around 10:00 A.M.; no specimens of *spila* were collected or seen after 4:00 P.M., even though the temperature still seemed favorable for their flight. Moderate breezes were blowing, and in combination with the temperature may have had some bearing on the termination of the diurnal flight. However, the breezes were also evident around 12:30 P.M., at the peak of flight. The reasons for the terminations of the diurnal flight of *spila* as well as other species of *Annaphila* still remains unknown. Specimens of *A. decia* Grote, *A. depicta* Grote, and *A. divinula* Grote were collected in the same area until 5:00 P.M., and probably could have been collected later in the day as well.

The adults of *spila* were found to frequent the flowers of a small number of plant species, predominantly *Monardella breweri*. The adults were also collected on *Gilia* sp., *Erodium* sp., and *Psycocarpos* sp. Occasionally they were seen hovering around *Cercus occidentalis*, but none were observed either alighting on the leaves or feeding on the flowers. One specimen was collected around 12:30 P.M., while apparently drinking water from a damp, sandy spot along a stream.

The "crimson-winged" group in the genus *Annaphila* is comprised of *superba* Henery Edwards, *spila* Rindge & Smith, and *evansi* Rindge & Smith. *A. superba* may be readily distinguished from both *spila* and *evansi* by the reniform being centrally of ground color, outlined in white, and connected to the costa by a white patch above the anterodistal margin of the reniform; by the

ventral surface of the primaries possessing a complete median cross line or band. *A. spila* and *evansi* are more closely related to each other than either is to *superba*, as is readily seen by the maculation of the dorsal surfaces of the primaries; the transverse ridge across the top of the frons; the female and male genitalia. Neither *spila* nor *evansi* display a white outlined reniform; however in freshly emerged specimens a faint gray outlining of the reniform may be seen; nor do they display complete median cross lines on the ventral surface of the primaries as does *superba*. *A. spila* has a dot on the ventral surface of the primaries in place of the band present in *superba*, and *evansi* lacks both of these characters.

As may be seen by the relationship in the genitalia of these species, it seems plausible to assume they arose from a common ancestor, and that *superba* is evolving as a discrete unit while *spila* and *evansi* are evolving as another more closely associated unit. The "crimson-winged" group is most probably an offshoot of the "*astrologa-ida*" group. The female genitalia of *superba* show a similarity to the female genitalia of *ida* Rindge & Smith, but the genitalia of the males do not show this as well.

In the "Revision of the genus *Annaphila*" (Rindge & Smith, 1952), the new species *spila* was based on very few specimens of which only one was a male. A female was chosen as the type and the description was drawn from this sex. I was not sure of the justification of including the allotype male in the type series, as it was collected in an entirely different geographical area which is separated from the type locality by the great interior valley of California. Further study has proved the populations from the coast ranges to be conspecific with those of the foothills of the Sierra-Nevada, just as Rindge and Smith suspected.

In the original description of *spila*, it was stated that this is an obscurely marked species. I find this not to be so in every instance; but it must be kept in mind that Rindge & Smith had very few specimens. The species of *Annaphila* are very easily rubbed, and this probably accounts for *spila* being described as an obscurely marked species. However, in comparison with *superba*, both *spila* and *evansi* in excellent condition are more obscurely marked; but in fresh specimens one can readily see the cross lines of the primaries which are light gray to white in both sexes.

LITERATURE CITED

- RINDGE, F. H. and SMITH, C. I. 1952. A revision of the genus *Annaphila* Grote (Lepidoptera, Phalaenidae). *Bull., Amer. Mus. Nat. Hist.* 98(3): 57 pp., 8 plates.